Memory for musical sequences beyond pitch: Grammatical and associative processes

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Abstract: Memory for music can be detailed and concrete even without conscious effort to encode. We hypothesize that this is because of a symbiotic relationship between memory and musical structure. The stimuli in our experiments are drum patterns derived from a published corpus. The grammars of these patterns are asymmetric in their transition probabilities, sparse as matrix structures, and referential, in that one sound (instrument) is centrally connected to other sonic elements. Participants heard drum sequences taken from the corpus, or manipulated for the three significant features. They then identify examples as previously heard or as lures. Results to date confirm that memory is enhanced for sequences with grammars that are asymmetrical, referential, and sparse; manipulation of any of these factors degrades memory for these sequences. We propose that these three factors are primary cognitive elements of perception beyond the domain of musical pitch, and consider parallels with linguistic sound structure.